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EXAMINER

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MAILING DATE	ART UNIT	PAPER NUMBER
11/16/99	11	10/24/00

1615

DATE MAILED: 10/24/00

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

### OFFICE ACTION SUMMARY

Responsive to communication(s) filed on 8-1-99

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 1, 5, 7-13, 15 & 17-32 is/are pending in the application.  
Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 Claim(s) \_\_\_\_\_ is/are allowed.  
 Claim(s) 1, 5, 7-13, 15 & 17-32 is/are rejected.  
 Claim(s) \_\_\_\_\_ is/are objected to.  
 Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.  
 The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.  
 The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.  
 The specification is objected to by the Examiner.  
 The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).  
 All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.  
 received in Application No. (Series Code/Serial Number) \_\_\_\_\_  
 received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of Reference Cited, PTO-892  
 Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_  
 Interview Summary, PTO-413  
 Notice of Draftsperson's Patent Drawing Review, PTO-948  
 Notice of Informal Patent Application, PTO-152

-SEE OFFICE ACTION ON THE FOLLOWING PAGES--

Art Unit: 1615

## DETAILED ACTION

**The request for the extension of time and amendment filed on 8-1-00 are acknowledged.**

**Claims included in the prosecution are 1, 5, 7-13, 15, and 17-32.**

### *Claim Rejections - 35 U.S.C. § 112*

**1. The following is a quotation of the second paragraph of 35 U.S.C. 112:**

**The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

**2. Claims 1, 5, 7-13, 15, and 17-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

**It is unclear what applicant intends to convey “polymeric or monomeric unit ---- incorporated into the pH sensitive polymer” in claim 1. How can one incorporate anything in a polymer which has covalently linked monomers? Which bonds to the carrier or therapeutic or diagnostic agent? The monomeric or polymeric unit or the pH sensitive polymer? Claim 1 is very confusing.**

**The term, ‘first polymer’ in claim 7 has no antecedent basis in claim 1. Similar is the case with ‘second polymer’ in claim 11. ‘the polycationic material’ in claim 26 lacks an antecedent basis in claim 11.**

Art Unit: 1615

**What is meant by ‘solvent composition’ in claim 22?**

**Where are the lysosome degrade and what is the compound which decreases the degradation as recited in claim 9? This rejection is maintained since applicant did not address this issue.**

*Claim Rejections - 35 U.S.C. § 102*

**3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

**A person shall be entitled to a patent unless —**

**(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.**

**4. Claims 1, 5, 7, 9, 15, 18,19, 21, 22, and 28-29 are rejected under 35 U.S.C. 102(a) as being anticipated by Herbig (5,609,590).**

**Herbig discloses beads containing pH sensitive polymers and therapeutic agents (note the abstract, examples and claims).**

Art Unit: 1615

**Applicant's arguments have been fully considered, but are not found to be persuasive. Applicant argues that there is no suggestion in Herbig of a pH sensitive polymer which is membrane disruptive at a pH between 5 and 6.5 and which is conjugated to or has incorporated therein a second polymeric or monomeric unit which enhances disruption of membrane or bonds to a carrier or a therapeutic or diagnostic agent. These arguments have not been found to be persuasive since instant claims do not distinguish over prior art's compositions. Applicant is incorrect in stating that the prior art does not teach a pH sensitive polymer. Applicant's attention is directed to col. 8, line 45 through col. 9, line 10 where the reference teaches pH sensitive polymer. Furthermore, on col. 9, line 11, the reference teaches a blend of polymers which meets instant requirement of 'incorporated therein'. With regard to pH ranges, the reference's range includes claimed range.**

5. Claims 1, 5, 7-13, 15, and 18-32 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 97/09068 of record.

WO 09068 teaches stimuli-responsive polymer systems for drug delivery (note the entire patent).

**Applicant's arguments have been fully considered, but are not found to be persuasive. Applicant argues that there is no disclosure or suggestion of a pH sensitive polymer which is membrane disruptive at a pH between 5 and 6.5 and which is conjugated to or incorporated therein a second polymeric or monomeric unit. This argument is not found to be persuasive since the reference teaches the same pH sensitive polymers on pages**

Art Unit: 1615

**17 and 18 and discloses the interactive compounds which are conjugated on page 22. The reference meets the requirements of instant claims.**

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

**6. Claims 1, 5, 7, 9-10, 15, 18-25 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Shapland (5,807,306).**

Shapland discloses drug delivery using ultrasound or iontophoresis (note the abstract, column 16 and claims).

Applicant's arguments have been fully considered, but are not found to be persuasive. Shapland discloses on col. 9, various polymers and propylene glycol which is incorporated within the matrix. Burden is upon applicant to show that these polymers do not have the intended functional limitation recited in claim 1. Propylene glycol meets the requirements of the monomeric unit recited in the claims.

**7. Claims 1, 3, 5, 8-13, 15, 17-19, 21-22, 27 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Lishko (5,753,263).**

Lishko teaches pH sensitive liposomal compositions containing a polymer or a synthetic peptide for the delivery of nucleic acids (note column 15, line 13 et seq., and col. 20).

Art Unit: 1615

**Applicant's arguments have been fully considered, but are not found to be persuasive. Applicant's arguments once again pertain to the lack of teachings of monomeric unit and the pH sensitive polymers. Lishko teaches phospholipids (instant claim 30) and the polymer taught by Lishko is pH sensitive as evident from col. 15.**

*Claim Rejections - 35 U.S.C. § 103*

**8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**9. Claims 1, 3, 5, 8-13, 15, 17-19, 21-22, 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lishko cited above.**

As pointed out above, Lishko teaches pH sensitive liposomal compositions containing a polymer or a synthetic peptide for the delivery of nucleic acids (note column 15, line 13 et seq., and col. 20). Lishko however, does not specify the polymers and does not specifically disclose instant pH ranges. It would have been obvious to one of ordinary skill in the art that to select an appropriate polymer having a selected pH range sensitivity based on the teachings of Lishko with the expectation of obtaining the best possible results.

Art Unit: 1615

**10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a).**

**Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).**

**A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.**

**11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *G.S. Kishore* whose telephone number is (703) 308-2440.**

**The examiner can normally be reached on Monday-Thursday from 6:30 A.M. to 4:00 P.M. The examiner can also be reached on alternate Fridays.**

**If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, T.K. Page, can be reached on (703)308-2927. The fax phone number for this Group is (703)305-3592.**

Art Unit: 1615

**Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [thurman.page@uspto.gov].**

**All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.**

**Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)308-1235.**



**Gollamudi S. Kishore, Ph. D**

**Primary Examiner**

**Group 1600**

*gsk*

**October 19, 2000**